

Remarks/Arguments

Reconsideration of this application is requested.

Extension of Time

A request for a one month extension of time for response to the outstanding office action is enclosed. The extended period for response expires on August 21, 2005.

Claim Status

Claims 1-8 were previously presented and remain pending. Since no claims are canceled, added or amended, no listing of claims is required under 37 CFR 1.121.

Claim Rejections – 35 USC 103(a)

Claims 1, 2, 5 and 6

Claims 1, 2, 5 and 6 are rejected under 35 USC 103(a) as obvious over Farwell et al. (US 5,062,001) and Li et al. (US 6,529,629). Applicant respectfully traverses these rejections and submits that claims 1, 2, 5 and 6 are not rendered obvious by Farwell and Li.

Farwell is directed to conversion of color images to gray scale images. Signals corresponding to each color pixel are generated in a group of successive frames. For example, if no signal is generated in seven successive frames, a black indication is provided, whereas a white indication is provided when a signal is generated in each of the seven successive frames. Shades of gray are produced between these extremes. The color of magenta may correspond to a light shade of gray, such as two signals in seven frames, whereas the color of blue may correspond to a more moderate shade of gray, such as four signals in seven frames (Farwell, col. 3, line 50 to column 4, line 3). In order to eliminate flicker, the signals corresponding to each pixel are produced in a different pattern of frames in each repetitive count (Farwell, col. 2, lines 25-34; Fig. 4). This is accomplished by using a frame count, such as "7", that does not divide evenly into the number of clocked positions (Farwell, col. 4, line 66 to col. 5, line 11).

Farwell is fundamentally different from the claimed invention in several critical aspects. First, it does not perform any sort of interpolation processing (claim 1) or thinning out of pixel data (claim 5) on incoming pixel data, as is required by the claims. Rather, incoming color images are merely converted to gray scale images and there is no disclosure that the incoming color image is subjected to any magnification or reduction processing, or thinning out of pixel data. Second, the incoming image that Farwell processes is neither a pseudo gray-scale image nor a bi-level image, as is required by the claims. Rather, it is a color image that is converted into a gray scale image.

Applicant's claims 1 and 5, as previously amended, require determining whether incoming pixel data corresponds to a pseudo gray-scale image or a bi-level image. If the pixel data corresponds to a bi-level image, the counter is reset since vertical streaks (moire) are not an issue with bi-level images. However, if the incoming pixel data corresponds to a gray scale image, where vertical streaks are an issue, the counter is not reset, with the resulting pixels are positioned randomly to suppress the emergence of vertical streaks.

The Action acknowledges that Farwell fails to disclose adjusting processing based on whether incoming pixel data is gray scale or bi-level image data. Indeed, one would not expect Farwell to have such a disclosure since Farwell does not process either of these types of images. As discussed above, Farwell teaches only that an incoming color image is converted to a gray scale image. Nevertheless, the Action cites Li as disclosing identification of halftone (pseudo gray-scale) and text (bi-level) image areas and removing moire patterns only for halftone areas, and concludes that claims 1, 2, 5 and 6 are thereby rendered obvious over Farwell in view of Li. In particular, the Action states at page 3:

It would have been obvious to one reasonably skilled in the art at the time of the invention to modify the Farwell disclosure by adding the ability to identify image regions and adjust the type of image processing accordingly as taught by Li.

Applicant respectfully disagrees. Farwell is concerned only with conversion of color images into gray scale images. Farwell contains no teaching or suggestion of accepting either gray scale or bi level images for processing, and it would make no sense for Farwell to contain such a suggestion since Farwell is concerned only with converting color images into gray scale images. Modifying Farwell, as suggested by the Action, to include the ability to distinguish between gray scale and bi level images and adjust its processing accordingly necessarily implies modification of Farwell to accept gray scale images for processing. Farwell's only purpose, however, is to convert color images into gray scale images. An image that is already in gray scale would have no need to be converted into gray scale. Thus, why would one of ordinary skill in the art be motivated to modify Farwell to accept images including gray scale images for processing, and adjust its processing accordingly, when its sole purpose is to convert color images *into* gray scale images?

For these reasons, applicant submits that the combination of Farwell and Li is improper hindsight afforded only by the benefit of applicant's invention. Farwell and Li are directed to different problems and, if Farwell's purpose and context are considered, it makes no sense and there is no motivation to modify Farwell with the teachings of Li. The rejections of claims 1, 2, 5 and 6 under 35 USC 103(a) should be withdrawn.

Claims 3, 4, 7 and 8

Claims 3, 4, 7 and 8 are rejected under 35 USC 103(a) as obvious over Farwell, Li and Honma (US 5,280,348). Applicant respectfully traverses these rejections and submits that claims 3, 4, 7 and 8 are not rendered obvious by Farwell, Li and Honma.

Honma does not cure the deficiencies of Farwell and Li as applied to claims 1 and 5, which claims 3, 4, 7 and 8 depend from. Therefore, claims 3, 4, 7 and 8 are not rendered obvious by Farwell, Li and Honma for the same reasons as discussed above with reference to claims 1 and 5.

Claims 3 and 7, in addition to the limitations inherited from claims 1 and 5, recite generating a read clock by thinning out a write clock (claim 3) and generating a write clock by thinning out a read clock (claim 7). The Action acknowledges that Farwell and Li fail to meet these limitations, but cites column 9, line 45 to column 10, line 5 of Honma. In this passage, Honma discusses generating a reduced rate clock signal CKa by eliminating a part of the clock signal VCLK at a rate determined by a set signal SET8.

Again, applicant respectfully submits that this combination of references is improper. As discussed above, Farwell is not concerned with interpolation processing, such as magnification and reduction, that would motivate one to seek methods such as the thinning out of the read or write clock. Rather, Farwell is concerned only with conversion of color images into gray scale images. Farwell contains no teaching or suggestion of thinning or interpolating pixels by thinning the read or write clock, and it would make no sense for Farwell to contain such a suggestion since Farwell is concerned only with converting color images into gray scale images. The methods of Honma have no relevance or use to the disclosure of Farwell.

For these reasons, applicant submits that the combination of Farwell, Li and Honma is improper hindsight afforded only by the benefit of applicant's invention. Farwell and Honma are directed to different problems and, if Farwell's purpose and context are considered, it makes no sense and there is no motivation to modify Farwell with the teachings of Honma. The rejections of claims 3, 4, 7 and 8 under 35 USC 103(a) should be withdrawn.

Conclusion

This application is now believed to be in condition for allowance. The Examiner is invited to telephone the undersigned to resolve any issues that remain after consideration of this response.

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Reply to Office Action of April 21, 2005

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Any fees due with this response may be charged to our Deposit Account No.
50-1314.

Respectfully submitted,
HOGAN & HARTSON L.L.P.

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